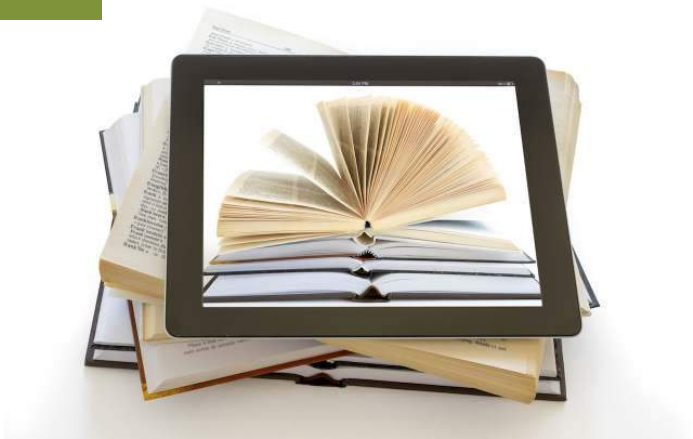
# Learning to learn

Christian M. Stracke
Michael Shanks
Oddgeir Tveiten (Eds.)

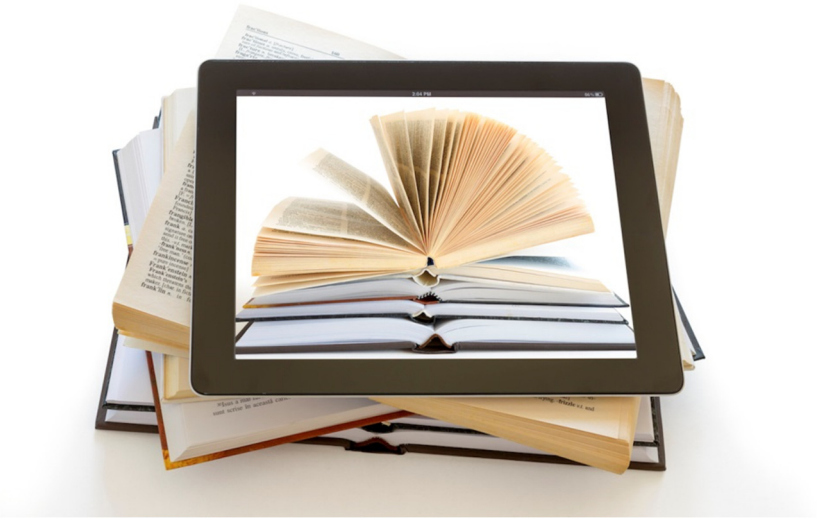
# Smart Universities
# Education's Digital Future



λογος

**Christian M. Stracke**
**Michael Shanks**
**Oddgeir Tveiten (Eds.)**

# Smart Universities: Education's Digital Future



## Official Proceedings of the International WLS and LINQ Conference 2017

World Learning Summit 2017

International LINQ Conference

Organized by the University of Agder, the Open University of the Netherlands, the University of Standford and by the International Community for Open Research and Open Education (ICORE)
and supported by:














**Christian M. Stracke,**
**Michael Shanks,**
**Oddgeir Tveiten (Eds.)**

# Smart Universities: Education's Digital Future

## Official Proceedings of the International WLS and LINQ Conference 2017

Organized by the University of Agder, the Open University of the Netherlands, the University of Standford and by the International Community for Open Research and Open Education (ICORE)

**Christian M. Stracke, Oddgeir Tveiten, Michael Shanks (Eds.)**

# Smart Universities: Education's Digital Future

Official Proceedings of the International WLS and LINQ Conference 2017
held in Kristiansand, Norway, on 7th-9th of June 2017.

Bibliographic information published by the Deutsche Nationalbibliothek:

The German National Library (Deutsche Nationalbibliothek) lists this publication
in the German National Bibliography (Deutsche Nationalbibliografie);
detailed bibliographic data are available in the Internet at <http://dnb.d-nb.de>.

ISBN: 978-3-8325-4595-6

Published by Logos Verlag Berlin GmbH
Comeniushof
Gubener Str. 47
D-10243 Berlin
Internet: <http://www.logos-verlag.de>




Contact:
Dr. Christian M. Stracke
Open University of the Netherlands
christian.stracke@ou.nl

Dr. Oddgeir Tveiten
University of Agder, Norway
oddgeir.tveiten@uia.no

Information about WLS and LINQ 2017 online: <http://www.worldlearningsummit.com>

# Table of Content

# Learning to learn: Beyond 2020

*Esther Tan[1], Christian M. Stracke[1], Marek Prokopowicz[2], Edit Kővári[3], Tamás Kigyós[3], Tibor Csizmadia[3], Karin Kronika[4], Bea Fehérvölgyi[3], Krisztina Erdős[5]*

[1]Open University of the Netherlands, Heerlen, The Netherlands
[2]Wrocław University of Economics, Poland
[3]University of Pannonia, Hungary
[4]BEST Institut für berufsbezogene Weiterbildung und Personaltraining GmbH, Austria
[5]Europa Consortium Regional Development Non-profit Limited, Hungary
esther.tan@ou.nl

**Abstract:** The current discourse on staying relevant in the 21st century workplace and lifelong learning is instrumental for this empirical work. This research study has a two-fold objective. First, it identifies the skill-deficit in our graduates when they enter the workforce: critical thinking, problem-solving and managing one's own learning process. Second, it captures best practices of educational, non-educational and training agencies in developing and evaluating the above-mentioned three core skill-sets. In-depth interviews were carried out with 72 organizations: 34 educational institutions and 19 non-educational institutions plus 19 training agencies as specific third target group. Two main findings emerged: First, there is a gap between employers' expectations and graduates' competences, and second, the methods of developing and evaluating the three core skill-sets differ between educational institutions on one hand and non-educational institutions and training agencies on the other hand. This implies a need for a more integrated planning system amongst the core stakeholders: the HEI, industry players and governmental bodies.

**Keywords:** lifelong learning, critical thinking, problem-solving, managing one's own learning, global connectivity

## 1 Introduction

Technological advances has revolutionised not only the way we learn, but also the way we work in the 21st century landscape. Global connectivity has created not only borderless classrooms, but also virtual workplaces. Current discourse on lifelong learning, future skills, and future-ready graduates imply a dire need to

revisit the existing Higher Education (HE) instructional programmes and rethink how we might better equip and empower our graduates to increase their employability and mobility in the 21st century workplace (Stracke, 2011). In the face of rapid global changes, Davies, Fidler, and Gorbis (2011) identify 10 future skills that would be much needed for a future-ready cohort of workers: sense-making, novel and adaptive thinking, virtual collaboration, transdisciplinary, cross-cultural competency, social intelligence, cognitive load management, new media literacy, a design mindset and computational thinking. New competences in the future workplace also imply the need for professional development and training of our teachers (European Commission, 2012).

In Europe, the Education and Training 2020 strategy (ET2020) forms part of the Europe 2020 strategy to promote growth and jobs (Kim, 2015). Similiar trends can also be traced in Asia. In Japan and Korea, there is a clear vision to improve tertiary education and to promote lifelong learners. In Japan, stronger partnership and collaboration between the respective universities, corporate world, governmental bodies have been enforced (Kim, 2015). And to the Far-east, Singapore, its educational vision and mission statement, “Thinking Schools, Learning Nation“, aims to develop creative thinking skills and to foster lifelong learning. In a nutshell, education will remain a key driver for economic growth and nation building in Asia. On the same note, the key research interest in the European Union (EU) also foregrounds internationalization in higher education (Yemini & Sagie, 2016). Likewise, Staley and Trinkle (2011) accentuate the need for formal HEI’s commitment to general education, i.e., provision of training in practical and vocational contexts.

In the light of the EU context, the research questions read:

1. What are the core skill-sets a graduate would need to possess when he or she enters the workforce?
2. What would be the best practices (methods or tools) to develop and evaluate the core-skill sets of our graduates?

# 2 Methodology

## 2.1 Sample and design

The empirical study is conducted in two phases. In the first phase, desktop research and establishing initial contacts with various organisations ranging from formal educational institutions (such as schools and universities) to non-formal educational institutions (such as enterprises) and including specialised training agencies as third specific target group via an insight-card were carried out. Under the overarching competence - 'learning to learn', three core skill-sets with their respective subsets were identified as critical for graduates to enter the workforce: critical thinking, problem-solving and managing one's own learning process (see figure 1).

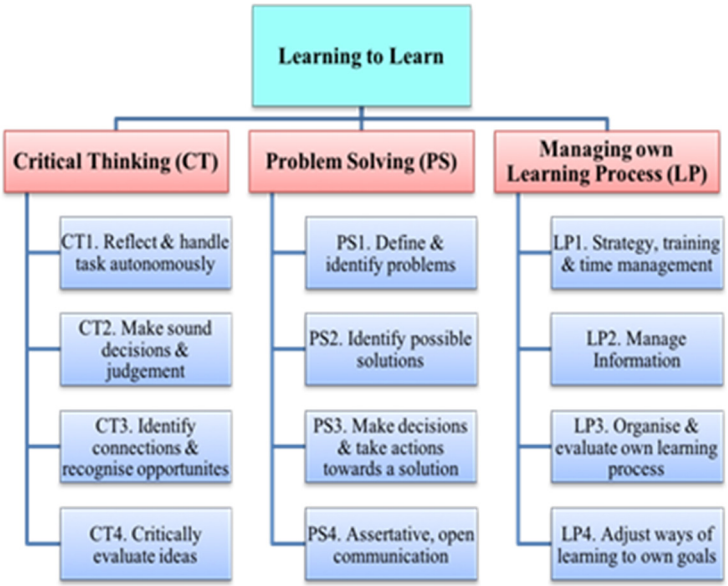



Figure 1: Three core skill-sets in Learning to Learn

In the second phase, 72 structured interviews were conducted via face-to-face interviews, Skype and other electronic forms over a period of three months (from Feb to April, 2016). Table 1 provides an overview of the framework of the structured interview and a summary of the core question items.

Table 1: Framework of the in-depth structured interview

| **Core aspects of structured interview** | **Interview questions on the three core skill-sets:** critical thinking, problem solving & managing one's own learning |
|---|---|
| Importance & Implications of skill-set | How important is the skill-set (e.g., problem solving) in your organization?<br>In which areas is the skill-set (e.g., problem solving) most essential? And why in those specific areas? |
| Method(s) of assessing skill-set | What method(s), tool(s) and/ or diagnostic test(s) (if any) are used to identify potential employees? Please elaborate on the strengths and limitations of these means of assessments |
| Method(s) of developing & evaluating skill-set | Do you offer any training activities for your employees (e.g., related to developing the ability to problem-solve)?<br>If not, why? What is the reason for not doing so?<br>If yes, could you elaborate on those solutions / training courses / modules / methods/ tools<br>What possible problems / limitations could emerge with regard to the solution(s)/ method(s)? How can they be countered or overcome? |

The structured interviews on the three core skill-sets and the overarching competence of learning to learn involved schools, universities, teacher education centres, adult education centres (continuing education centres), scientific research centres, training institutions, psychological and educational counselling services for adults, foundations, associations operating in the education and continuing education field, career counselling services, job agencies, as well as human resources departments in companies. In total, we obtained 72 structured interviews across Europe (countries in alphabetical order: Austria, Belgium, Bulgaria, Czech Republic, Finland, Germany, Hungary, Lithuania, the Netherlands, Norway, Poland, Slovakia and Ukraine): 34 educational institutions (e.g., universities, schools, i.e., so-called formal education); 19 non-educational organizations (e.g., companies, workplace) and 19 training agencies (e.g., language and coaching schools, continuing education centres etc.).

### 2.2 Data collection and analysis

The structured interviews via Skype and face-to-face were audio-recorded and/ or field notes were also taken. The corpus of audio (Skype & face-to-face) and written data (from the electronic format) were then analysed and coded with respect to five thematic categories: (1) importance of the three skill-sets, (2) areas/fields where the skill-set(s) is/are particularly needed, (3) methods of assessing/ verifying the skill-set(s), (4) method(s) of developing the skill-set(s), (5) method(s) of evaluating the acquired skill-set(s). For the scope of this paper, we present the findings on the importance and implications of the three core skill-sets, as well as methods on developing and evaluating these three skill-sets.

## 3 Findings

This section addresses the two main research questions. We will first present the findings on the importance of the three core skill-sets in section 3.1. Next, we will identify the method(s) to develop and to evaluate these skill-sets in section 3.2.

### 3.1 Importance of the skill-sets in future workplace

Findings from the insight-cards, as well as in-depth structured interviews identifed a gap between employers' expectations and graduates' competences. Employers have increasingly sought potential employees which possess the "learning to learn" competence, i.e., the capacity to embrace and process new knowledge and new skills, as well as to leverage new experiences to explore unchartered terrorities and new entrepreneurial opportunities. The overarching competence - "learning to learn" is foreseen to be even more pronounced in the present Western labour markets which will empower the individuals both to achieve set goals and to perform effectively and efficiently. And albeit domain-specific knowledge acquired in formal education still serves a perfunctory role, both educators and employers alike, foresee that the competence for continuous learning and improvement shall remain a greater asset for progress and development in all companies and industries.

Likewise, all interviewed partners identified critical thinking as one of the core competences necessary for the workplace, as well as for one's career advancement. Notwithstanding interviewees differed in methodologies for

triggering and inculcating critical thinking skill in their employees, however, all shared similar understanding of critical thinking and the related four sub-skills (as shown in figure 1, page 3). The sub-skills carry important implications for effective and efficient project task planning and execution.

On problem-solving skills, most interviews expressed that critical thinking and problem-solving skills are inseparable in many ways. What essentially distinguishes these two skills lies in possessing a positive attitude towards problem-solving. Having the right attitude was emphasised as the most important aspect to develop and to nurture.

Finally, managing one's own learning process was thought by most interviewees as being the most challenging to define. However, all unanimously agreed that managing one's own learning path involves work-life balance, lifelong learning and career goals. In this competence, they included time management skills, self-knowledge and reflective mind-set as important sub-skills.

## 3.2 Methods for developing and evaluating the three skill-sets

As shown in table 2, methods of developing and evaluating the three skill-sets differ mainly between educational institutions and non-educational institutions including training agencies. Educational institutions develop and evaluate these three skill-sets in a less contextualised environment whereas non-educational and training institutions give focus to developing and evaluating empolyees in real-world contexts. Likewise, for non-educational and training institutions, authentic workplace training is a recommended method of developing such skill-sets and the appropriate method for evaluating the acquired skill-sets are task performance, target observation and diagnostic test.

Table 2: Summary of methods to develop and to evaluate the three skill-sets

| Methods of Development | Methods of Evaluation |
|---|---|
| **Educational Institutions** | |
| Case study; project/ research work; peer feedback; supervision | Periodic assessments; exams; task performance |
| **Non-educational Institutions** | |
| Internal & workplace training; specific tasks | Competency tests; task performance |

| Training Agencies | |
|---|---|
| Internal & workplace training; mentoring; practical tasks; problem solving; educational walks | Diagnostic tests; targeted observation; periodic evaluation based on competency profile |

Whilst the educational, non-educational and training institutions may vary in their methods of developing and evaluating the three core skill-sets (as illustrated in table 2), there is a general consensus on an ideal learning environment which embodies three critical aspects: pedagogy, organisation and communication. Here, emphasis is given to active learning and learner-centered teaching, cross-curricular competences and appropriate assessments, and importantly, all three types of institutions expressed the need for concerted effort and the necessary infrastructure for effective communication, coordination and collaboration of all key stakeholders, i.e., educational, non-educational and training institutions, future employers and industry players.

## 4 Conclusion

This empirical study investigates the skill-deficit in our current HE graduates and methods of developing and evaluating the core skill-sets that are pivotal as these HEI graduates join the workforce. Two key findings were surfaced: 1. There is a gap in existing HEI curriculum programmes and the type of skills that employers desire and demand from their employees; 2. Albeit that some HEIs could be attempting to develop and to evaluate the three core skills, the methods of fostering and assessing these skill-sets vary between educational and non-educational institutions including training agencies.

To bridge the gap between employers' expectations and graduates' competences, and to integrate the three core skill-sets into the existing HEI curriculum, there are three important implications: 1. The Preparation: A new infrastructure to faciliate communication, coordination and collaboration amongst formal HEI institutions, non-educational institutions, training agencies, industry players, as well as governmental bodies is imperative. This new 'infrastructure' requires a socio-technological approach to facilitate an effective collaboration amongst the core stakeholders. To put in place a HEI curriculum that prepares our graduates for the 21$^{st}$ century workplace, collaboration amongst the key players in developing and designing the curriculum will be pivotal. To this end, a knowledge sharing community model that facilitates virtual

collaboration, as well as face-to-face communication will be instrumental to foster a concerted effort amongst the HEIs, governmental bodies and industry players; 2. The Practice: Authentic tasks in real world settings are instrumental in developing and evaluating those skill-sets in our graduates. This implies that there should be greater alignment between internship, developing graduates' competences and career interests; and 3. The Pay-off: An integrated planning system involving all key stakeholders will foster closer links between educators, industry players, and policy makers. This will work towards equipping and empowering our graduates for the local and global marketplace, and importantly, supporting them to develop their capacity for lifelong learning and going beyond 2020 to stay relevant in the 21st century.

## 5 Acknowledge

This article is supported by LELLE, the European Erasmus+ project for "Learning how to Learn". LELLE is co-funded by the European Commission under the project number: 2015-1-HU01-KA203-013619.

## 6 Reference

Davies, A., Fidler, D., & Gorbis, M. (2011). Future work skills 2020. *Institute for the Future for University of Phoenix Research Institute*, 540.

European Commission (EC). (2012). Rethinking education: investing in skills for better socio-economic outcomes.

Kim, B. (Ed.) (2015). *MOOCs and Educational Challenges around Asia and Europe*. South Korea: KNOU press.

Staley, D. J., & Trinkle, D. A. (2011). The changing landscape of higher education. *FormaMente: Rivista internazionale di ricerca sul futuro digitale*, (1-2011), 15.

Stracke, C. M. (2011). Competences and skills in the digital age: Competence development, modelling, and standards for human resources development. *Communications in Computer and Information Science, 240 (34-46)*. Berlin/ Heidelberg: Springer.

Yemini, M., & Sagie, N. (2016). Research on internationalisation in higher education–exploratory analysis. *Perspectives: Policy and Practice in Higher Education, 20*(2-3), 90-98.

# WLS and LINQ 2017 Scientific Programme Committee

## Members of the WLS and LINQ Scientific Programme Committee:

Amiel, Tel (Brazil)
Asmatullayeva, Nelly (Kazakhstan)
Dias, Ana (Portugal)
Domazet, Dragan (Serbia)
Doran, Rosa (Portugal)
Ferreira, Giselle (Brazil)
Jahnke, Isa (USA)
McGreal, Rory (Canada)
Nakabayashi, Kiyoshi (Japan)
Nascimbeni, Fabio (Spain)
Ossiannilsson, Ebba (Sweden)
Sampson, Demetrios (Australia)
Shon, Jin Gon (South Korea)
Smith, David (Australia)
Spina, Edison (Brazil)
Stracke, Christian M. (Netherlands)
Strickroth, Sven (Germany)
Tveiten, Oddgeir (Norway)
Trondsen, Eilif (USA)

The Conference Co-Chairs thank the
Members of the Scientific Programme Committee
for their valuable and great support by their double-blind peer-reviews for the selection of the scientific papers submitted to the Open Call for Papers 2017.

http://2017.learning-innovations.eu/

http://worldlearningsummit.com

# WLS and LINQ 2017 Conference Chairs and Committee

The International WLS and LINQ Conference 2017 is organized by these experts:

**Conference Co-Chairs**

Oddgeir Tveiten
(*WLS, University of Agder, Norway*)

June Breivik
(*BI Norwegian Business School*)

Christian M. Stracke
(*LINQ, Open University of the Netherlands*)

| | |
|---|---|
| **Conference Co-Organizers** | Donna Kidwell<br>Eilif Trondsen<br>Derek Woodgate |
| **Conference Managers** | Vidar Mortensen<br>*(University of Agder, Norway)* |
| **Conference Communication** | UiA Media Service<br>Substans Analysis |
| **Technical Support** | UiA Media Service<br>Substans Analysis |

**World Learning Summit is hosted by the Future Learning Lab**

http://2017.learning-innovations.eu/

http://worldlearningsummit.com

Institutions of learning at all levels are challenged by a fast and accelerating pace of change in the development of communications technology. Conferences around the world address the issue. Research journals in a wide range of scholarly fields are placing the challenge of understanding „Education's Digital Future" on their agenda. The World Learning Summit and LINQ Conference 2017 proceedings take this as a point of origin. Noting how the future also has a past: Emergent uses of communications technologies in learning are of course neither new nor unfamiliar. What may be less familiar is the notion of „disruption" , found in many of the conferences and journal entries currently.

Is the disruption of education and learning as transformative as in the case of the film industry, the music industry, journalism, and health? If so, clearly the challenge of understanding future learning and education goes to the core of institutions and organizations as much as pedagogy and practice in the classroom.

One approach to the pursuit of a critical debate is the concept of Smart Universities  educational institutions that adopt to the realities of digital online media in an encompassing manner: How can we as smarter universities and societies build sustainable learning eco systems for coming generations, where technologies serve learning and not the other way around? Perhaps that is the key question of our time, reflecting concerns and challenges in a variety of scholarly fields and disciplines? These proceedings present the results from an engaging event that took place from 7th to 9th of June 2017 in Kristiansand, Norway.

**Logos Verlag Berlin** **ISBN 978-3-8325-4595-6**